WHAT IS CLAIMED IS:

1. A group III nitride compound semiconductor device, comprising:

a substrate;

a first group III nitride compound layer having a thickness of from 50Å to 3000Å and being formed on said substrate by a method not using metal organic compounds as raw materials; and

a second group III nitride compound semiconductor layer being formed on said first group III nitride compound layer.

2. A device according to claim 1, wherein said substrate comprises sapphire substrate.

3. A device according to claim 2, wherein said first group III nitride compound layer is formed on a face a of said sapphire substrate.

4. A device according to claim 1, wherein said method not using metal organic compounds as raw materials is selected from the group consisting of: a sputtering method inclusive of a reactive sputtering method; an evaporation method; an ion plating method; a laser ablation method; and an ECR method.

5. A device according to claim 1, wherein said first group III nitride compound layer comprises $Al_xGa_{1-x}N$ ($0 \leqq X \leqq 1$).

6. A device according to claim 1, wherein said first group III nitride compound layer comprises AlN.

7. A device according to claim 1, wherein the thickness of said first group III nitride compound layer is not smaller than 100Å but smaller than 1000Å.

8. A device according to claim 1, wherein said first group III nitride compound layer is formed on said substrate heated to a temperature not lower than 400°C.

9. A device according to claim 1, wherein said first group III nitride compound layer is heated at a temperature of from 1000°C to 1250°C in an atmosphere of a mixture gas containing a hydrogen gas or a nitrogen gas and an ammonia gas.

10. A device according to claim 1, wherein said second group III nitride compound semiconductor layer is formed by a metal organic chemical vapor deposition method.

11. A group III nitride compound semiconductor device, comprising:

a sapphire substrate;

a first group III nitride compound layer having a thickness of from 50Å to 3000Å and being formed on said sapphire substrate by a sputtering method; and

a second group III nitride compound semiconductor layer

being formed on said first group III nitride compound layer by a metal organic chemical vapor deposition method while said sapphire substrate is kept at a temperature of from 1000°C to 1250°C.

12. A device according to claim 11, wherein said first group III nitride compound layer comprises AlN.

13. A device according to claim 11, wherein the thickness of said first group III nitride compound layer is not smaller than 100Å but smaller than 1000Å.

14. A device according to claim 11, wherein a carrier gas of hydrogen or nitrogen is used in said metal organic chemical vapor deposition method for forming said second group III nitride compound semiconductor layer.

15. A method of producing a group III nitride compound semiconductor device, comprising steps of:

forming a buffer layer of AlN by a sputtering method on a sapphire substrate at a temperature not lower than 400°C; and

forming a group III nitride compound semiconductor layer by a metal organic chemical vapor deposition method on said buffer layer while heating said sapphire substrate.

16. A producing method according claim 15, wherein said buffer layer is formed on a face a of said sapphire substrate.

17. A producing method according claim 15, wherein a carrier gas of hydrogen or nitrogen is used in said metal organic chemical vapor deposition method when said group III nitride compound semiconductor layer at least in contact with said buffer layer is formed.

18. A method of producing a group III nitride compound semiconductor device, comprising steps of:

forming a first group III nitride compound layer on a substrate by a method not using metal organic compounds as raw materials;

heating said first group III nitride compound layer in an atmosphere of a mixture gas containing a hydrogen or nitrogen gas and an ammonia gas; and

forming a second group III nitride compound semiconductor layer on said first group III nitride compound layer.

19. A producing method according to claim 18, wherein said substrate comprises sapphire substrate.

20. A producing method according to claim 19, wherein said first group III nitride compound layer is formed on a face a of said sapphire substrate.

21. A producing method according to claim 18, wherein said method not using metal organic compounds as raw materials is selected from the group consisting of: a sputtering method

inclusive of a reactive sputtering method; an evaporation method; an ion plating method; a laser ablation method; and an ECR method.

22. A producing method according to claim 18, wherein said first group III nitride compound layer comprises $Al_xGa_{1-x}N$ ($0 \leqq X \leqq 1$).

23. A producing method according to claim 18, wherein said first group III nitride compound layer comprises AlN.

24. A producing method according to claim 18, wherein a mixture ratio of said hydrogen gas or said nitrogen gas to said ammonia gas is in a range of from 1:0.1 to 1:1 in terms of flow rate ratio.

25. A producing method according to claim 18, wherein a mixture ratio of said hydrogen gas or said nitrogen gas to said ammonia gas is in a range of from 1:0.1 to 1:0.5 in terms of flow rate ratio.

26. A producing method according to claim 18, wherein a mixture ratio of said hydrogen gas or said nitrogen gas to said ammonia gas is substantially 1:0.3 in terms of flow rate ratio.

27. A producing method according to claim 18, wherein

the temperature at which said first group III nitride compound layer is heated is in a range of from 1000°C to 1250°C.

28. A producing method according to claim 18, wherein said second group III nitride compound semiconductor layer is formed by a method using metal organic compounds as raw materials.

29. A producing method according to claim 28, wherein said method using metal organic compounds as raw materials is a metal organic chemical vapor deposition method.

30. A producing method according to claim 29, wherein the temperature for growth of said second group III nitride compound semiconductor by said metal organic chemical vapor deposition method is not lower than 1000°C.

31. A group III nitride compound semiconductor device comprising:

a buffer layer of a first group III nitride compound; and

a second group III nitride compound semiconductor layer formed on said buffer layer,

wherein said buffer layer is formed by a method not using metal organic compounds as raw materials and is heated in an atmosphere of a mixture gas containing a hydrogen or nitrogen gas and an ammonia gas before formation of said second group III nitride compound semiconductor layer.